

### Pending Claims

16. A method of determining over-representation or under-representation of a selected chromosome or a portion thereof in human tumor interphase cells comprising the steps of:

selecting a chromosome or portion thereof;

treating the human tumor interphase cells to render nucleic acid sequences present in the cells available for hybridization;

combining the human tumor interphase cells with a hybridization mixture comprising labeled DNA fragments derived from the selected chromosome, competitor DNA, and nonhuman genomic DNA, under conditions appropriate for hybridization of complementary nucleic acid sequences to occur; and

detecting labeled DNA fragments derived from the selected chromosome in order to determine the over-representation or under-representation of the selected chromosome or a portion thereof in human tumor interphase cells.

19. The method of claim 16, wherein the labeled DNA fragments are selected from the group consisting of probes comprising total recombinant library DNA, probes comprising DNA inserts purified from a chromosome-derived recombinant DNA library, and probes comprising specific DNA fragments derived from chromosomes.

20. The method of claim 16, wherein the labeled DNA fragments are selected from the group consisting of DNA fragments labeled with at least one fluorochrome, DNA fragments labeled with at least one member of a specific binding pair, and DNA fragments labeled with an enzyme.

21. The method of claim 20, wherein the fluorochrome is selected from the group consisting of fluorescein, rhodamine, Texas red, Lucifer yellow, phycobiliproteins and cyanin dyes.